CLAIMS

1. A system for the prediction of earthquakes which comprises:

• at least three peripheral detection stations distributed in predetermined positions over a territory, each station being capable of detecting the low frequency electromagnetic waves which are released as a result of mechanical stress of the underground rock layers,

• a central processing station which receives signals relating to said electromagnetic waves from each of said peripheral detection stations and processes said detections in order to obtain an indication of the epicentre and on the entity of the earthquake,

characterized in that

• each of said peripheral stations comprises at least one ring aerial for each of the directions defined by a series of three Cartesian axes suitable for detecting said electromagnetic waves,

• at least one of the ring aerials is a wide band aerial and is equipped with a receiver suitable for detecting a band in a preferred receiving frequency of said electromagnetic waves substantially free of disturbance frequencies, and tuning the reception of all the ring aerials on said disturbance-free band,

• a cancellation circuit of impulsive atmospheric dis-

turbances received on a different frequency band, which allows a signal to be obtained at the outlet, which only comprises premonitory signals freed of all disturbances.

2. The system according to claim 1, wherein each detection station also comprises a series of three magnetic aerials comprising a ferrite nucleus suitable for detecting electromagnetic waves with frequencies ranging from 0.1 Hertz to 10 Hertz, and at least a pair of aerials suitable for detecting variations in the earth's electric field.

3. The system according to claim 1, wherein each peripheral detection station comprises a radiogoniometric localization device suitable for detecting the receiving direction of said electromagnetic waves.

4. The system according to claim 2, wherein said aerials for detecting electromagnetic waves are equipped with a low noise amplifying circuit as described.

5. The system according to claim 2, wherein said central processing unit receives the detections effected by the magnetic aerials, the goniometric localization devices, the electric field aerials and generates a map of points within which the position of the epicentre of the earthquake is estimated.

6. The system according to claim 1, wherein each peripheral station comprises a GPS satellite receiver and at least one analogical digital converter for each aerial suitable for converting the signals received from the aerials into digital and marking the signals themselves, with the same temporal marker, by means of the GPS receiver.

7. The system according to claim 1, wherein each peripheral station comprises a modem for transmitting the digitalized signals to said central processing station.

8. The system according to claim 1, wherein each peripheral station comprises a GPS receiver, at least one analogical digital converter for each aerial present in the station itself, a local processing unit, a memorization device, a telephonic modem and a modem via radio equipped with an aerial.

9. The system according to claim 8, wherein said peripheral stations effect a temporal marking on the signals received from the aerials by means of said GPS receiver.

10. The system according to claim 9, wherein said central processing station receives the detections from the peripheral stations and, starting from the coordinates of the peripheral stations by means of said temporal marking of the signals detected, calculates the

differences in the receiving times between one signal and another, and obtains the coordinates of the epicentre and depth of the seism by effecting a TDOA calculation.

11. A method for the prediction of earthquakes, characterized in that it comprises the following phases:

- detecting low frequency electromagnetic waves which are released due to the mechanical stress of underground rock layers, by at least three peripheral detection stations distributed in predetermined positions over a territory,
- temporally and accurately marking the premonitory signals relating to said electromagnetic waves by means of a GPS receiver,
- sending said marked signals to a central processing station,
- calculating the differences in the receiving times between a signal coming from a peripheral station and another signal coming from a different peripheral station.
- calculating on the basis of said time differences of arrival of the signals, the coordinates of the epicentre and depth of the earthquake by effecting a TDOA calculation.